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Remarks

This is in response to the Official Action mailed April 19, 2007 (Paper No./Mail Date 20070408).

Applicants note with appreciation the Examiner's courtesy and professionalism during the recent office interview.

All of the independent claims (1, 40, 48, and 55) have been amended in response to the official action and consistent with the arguments presented herein. The independent claims now (i) include "consisting essentially of" in the preamble, (ii) recite that the copolymer is one of polyester and polyethylene glycol with a specified percentage of polyethylene glycol, and (iii) recite the presence of submicron particles of a fluorocarbon nucleating agent. These recitations further distinguish the claimed invention from the art as applied to date.

As set forth in the April 19, 2007 office action, the §102 rejections previously applied using Travelute No. 5,407,625 have been withdrawn. A number of other rejections remain, however, and are addressed herein. In particular, the independent claims have been rejected under various combinations of Siggel No. 4,164,603; Nichols No. 6,485,829; Li No. 4,626,390; and Soehngen No. 4,290,987.

Claim 1

Claim 1 has been rejected as obvious under a combination of Siggel '603; Nichols '829; and Soehngen '987; or under a combination of Li '390 and Nichols '829.

Applicants respectfully submit that Nichols '879 should be removed from the combination because the Examiner has included it based upon properties recited in Nichols, rather than any properties recited in the claims.

Stated differently, using the properties of Nichols as motivation for properties that are absent from the claimed invention lacks logical foundation. Carried to an extreme, the properties of any prior art patent could be applied against any pending claim if the Examiner

is entitled to take motivation from the art that is completely absent from the claims or the specification.

Stated in yet another manner, the Examiner's logic is circular. The Examiner identifies one property in a prior art patent (wetting and wicking characteristics) following which the Examiner asserts that the skilled person would seek to include those characteristics in claims that are silent with respect to such characteristics. Because the desire for improved wetting and wicking properties begins and ends with a single reference, these properties cannot support the inclusion of that reference into an obviousness combination. Stated differently, the Examiner has taken a hindsight approach by arguing that whatever Nichols sought from his invention, the Applicants must necessarily seek from the claimed invention. Nothing in the prior art, however, discloses or suggests that a polyethylene glycol-polyester copolymer will provide better foam than polyester standing alone.

Specifically, Nichols includes a fraction of polyethylene glycol in solid polyester filaments and fibers for the purpose of increasing the wetting and wicking capability of those fibers. Neither the pending claims nor the pending specification, however, argue that wetting or wicking are necessarily desired properties. In fact, wicking is never mentioned in the pending specification or claims and wetting is only mentioned in that the invention provides advantages (Paragraph 0102) over wetted fluff pulp.

Nichols was properly mentioned in the Applicant's original specification (Paragraph 0021) because it helps enable the claimed foamed composition. Nichols developed the composition for other purposes, but the inventors have discovered a new use—enhanced production of foam fibers. Applicants are entitled to patent protection for such a new use.

In terms of the combinations applied against the claims, Siegel '603 never refers to the wetting or wicking properties of fiber or filament, and thus it fails to provide the skilled person with any reason to select Nichols for that purpose.

Similarly, the wetting or wicking properties of fiber or filament are absent from Soehngen '987 and from Li '390. Thus, the skilled person has no reason to seek out Nichols to improve Li or Soehngen.

The Examiner has also taken positions that Li '390 discloses the claimed range of functional void fraction because Li makes the general statement that voids occupy "at least about 10 percent" of the cross-sectional area the fiber. Li also has at least one example (Example 3 at column 8 line 61 through column 9 line 7) in which a foam fiber exhibits 15-20 percent void space over the cross-sectional area of the fiber.

Neither of Li's values, however, approaches the claimed recitation of, "more than 35 percent functional void fraction." The Examiner has nevertheless taken the position that Li's recitation of more than 10 percent necessarily covers all void fractions greater than 10 percent, including the claimed range.

This argument lacks logical and legal foundation. First, the Examiner's argument could be extended to a 100 percent void fraction which would be a nonexistent fiber. More importantly, an applied reference must provide the skilled person with a sufficient description to place the public in possession of the recitation. Stated differently, a prior art reference must meet an enablement requirement before it can be fairly applied against a pending claim.

In unpredictable arts, of which chemistry is a good example, the prior art must meet a correspondingly higher standard. Thus, with specific respect to Li, Applicants submit that it can be fairly taken as disclosing void fractions up to 20 percent, but no higher. Beyond 20 percent, Li fails to offer the skilled person any information as to how to increase the void fraction consistent with the other necessary properties of the fiber.

The invention, however, does provide the skilled person with the information necessary to obtain the indicated void fraction of at least 35 percent, and in some cases as great as 50-75 percent.

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Accordingly, Applicants submit that even when Li is combined with other references (and the combinations are inappropriate) Li neither discloses nor suggests the recitations of the pending claims.

Siggel '603 has been applied for disclosing polyester with a relatively large void percentage (5-50 percent) and large number of cells per cross section (12-18). Siggel, however, includes silicone oil in order to obtain the desired result. Because the presence of such an oil may be undesired, inappropriate, or even function-destroying in other filaments, Applicants submit that its presence differentiates Siggel from the pending claims. In order to clarify this, the preambles of the independent claims have been amended to recite, "consisting essentially of," in order to distinguish between a foam filament containing silicone oil and the foam filament of the claimed invention.

Although the swelling and stretching steps described by Soehngen may produce a material with openings, the net result is in the nature of a solid filament that has been pulled sufficiently under chemical stress to produce micro-porous openings. This is nonanalogous to the extrusion of a foamed polymer as set forth in the pending application. Accordingly, although the Soehngen patent nominally mentions that fluorinated hydrocarbons can be used as nucleating agents, no reason to exists for the skilled person to look to Soehngen's swelling and stretching method in order to produce a foamed fiber. Thus, as in the case of the other references, the Soehngen reference appears to have been selected almost entirely in hindsight.

#### Claim 40

Claim 40 has been amended in a manner similar to Claim 1 and also contains the original recitation of the "different degrees of orientation along at least two adjacent longitudinal portions of the filament." Claim 40 is accordingly allowable over the combinations for the same reasons as is Claim 1. Claim 40 also recites the different orientations. To date, the Examiner has argued that Claim 40 would be obvious over a

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combination of Li, Nichols, and Travelute No. 5,407,625. In particular, the Examiner argues that the orientation property would be obvious because it is disclosed in Travelute.

In response, Applicants respectfully submit that by adding Travelute to the combination, the Examiner presents the skilled person with the following puzzle: combining a foam crimping method (Li) with a solvent stretching method (Soehngen) with a silicone oil process (Siggel) with a non-foamed filament (Travelute). No reason exist for the skilled person to pull individual steps from such different techniques other than the roadmap presented by the pending claims.

For example, Siggel ‘603 and Soehngen ‘987 are inconsistent with one another because Siggel creates foam from a melt that includes the silicone oil and either a gas or a gas-generating agent. In contrast, Soehngen contacts hollow precursor fibers with a swelling agent, stretches the swelling agent-soaked fiber to form the microporous openings, and then removes the swelling agent to leave the openings behind. No reason exists other than the pending claims to pick desired individual elements out of context from each of these patents and then combine them.

Stated positively, although the skilled person is expected to be aware of and take relevant information from the prior art, the skilled person will rationally avoid combining processes that are inconsistent with one another. Accordingly, the combination cannot be fairly applied against the pending claims.

#### Claims 48 and 55

Because claims 48 and 55 now include the same recitations as Claim 1, Applicants submits that the same considerations apply when evaluating the prior art and the combinations as applied to date. Accordingly, Applicants submit that claims 48 and 55 are allowable for the same reasons as Claim 1.

Claim 48, however, recites the additional structure of a hollow core and a foam sheath. None of the references disclose or suggest this combination. In rejecting Claim 48,

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(Paragraph 12 of the office action) the Examiner admits that Li fails to disclose a hollow fiber, but makes an unsupported statement that, "there are no reasons why not to form the hollow self crimp foam fibers."

This is a double negative statement that lacks logical support. "No deduction has two negative premises." STANFORD ENCYCLOPEDIA OF PHILOSOPHY, Stanford University Metaphysics Research Lab, CLSI, <http://plato.stanford.edu/entries/aristotle-logic/#PreStrAss> (accessed May 28, 2005).

The Examiner finds the art silent on the hollow foam fiber issue, and then adds the statement that no affirmative reason against hollow filaments is given, and then asserts that these two absences provide a positive disclosure in the absence of a realistic disclosure of either. Accordingly, Applicants respectfully submit that the double negative assertion cannot be used to elevate Li to a position of rendering the claims obvious, either with or without a further combination.

Claim 55 has all the recitations of Claim 1 with the additional recitation of the irregular longitudinal surface effects. Applicants respectfully repeat and reincorporate the arguments supporting the allowability of Claim 1. More specifically, the Examiner has rejected claim 55 as obvious over Li or as potentially anticipated by Li. Once again, the Examiner argues from an absence of evidence, "it is not seen that the fiber could not have surface effects as set forth in the claims" (Paragraph 8 of the office action). Again, Applicants respectfully point out that two negative statements cannot serve as logical proof of a given deduction. Accordingly, Applicants submit that Li cannot be applied in this matter as against the pending claims.

In Paragraph 8, the Examiner rejects independent Claim 55 as anticipated by or obvious over Li No. 4,626,390. In response, Applicants point out that Li never discloses the subject matter of Claim 55 within its four corners, and thus must be removed as a § 102 reference. Specifically, Li fails to disclose the irregular longitudinal surface effects that in length are at least an order of magnitude greater than the average diameter of the fiber and

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that in width are at least an order of magnitude smaller than the average diameter of the fiber.  
Absent this characteristic, Li cannot be applied as a 102 reference against Claim 55.

As noted above, Applicants thus respectfully submit that because the independent claims are allowable, the dependent claims are allowable as well and thus no further specific comment is made about them. Applicant is, of course, willing to take them up on a case-by-case basis as may be necessary depending upon the disposition of the independent claims.

Respectfully submitted,



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